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August 19, 1994 94-RF-08688

F. R. Lockhart
Environmental Restoration Division
DOE, RFFO

LETTER OF TRANSMITTAL: FINAL DRAFT OU 4 SOLAR EVAPORATION PONDS DISPUTE ON THE DENIAL OF EXTENSION REQUEST ASSOCIATED WITH A PROPOSAL TO MODIFY WORK SCOPE ISSUES DISPOSITION (REVISION 3) - SRK-176-94

Ref: S. R. Keith ltr (08275) to F. R. Lockhart, OU 4 Dispute: Disposition of Additional Technical Issues, August 4, 1994

Action: Process reply to regulators

Attached is a copy of the final draft of the OU 4 Solar Evaporation Ponds Dispute on the Denial of Extension Request Associated with a Proposal to Modify Work Scope Issues Disposition (Revision 3). This revision reflects comments received from the Colorado Department of Public Health and Environment and the Environmental Protection Agency during the working sessions.

If you would like to discuss these issues further, please contact Andy Ledford, extension 8673.

S. R. Keith
Program Manager
Solar Pond Projects

JAL:pjm

Orig. and 1 cc-F. R. Lockhart

Attachment:
As Stated

cc:
S. Howard - DOE, RFFO
S. Surovchak - " "
M. A. Witherill - " "

ADMIN RECORD

I101-A-000132

RF-16469 (Rev. 6/94)

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94-DOE-xxxxx

Mr. Joe Schieffelin, Unit Leader
Hazardous Waste Control Program
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80222-1530

Dear Mr. Schieffelin:

During our recent meetings to discuss the dispute to modify the scope of Operable Unit 4 Phase I remediation, twelve technical issues were identified. As agreed in these meetings, DOE has captured the disposition of these issues as agreed to by DOE, CDPHE, and EPA staff. The disposition is attached.

If you would like to discuss these issues further, please contact Frazer Lockhart, 966-xxxx.

cc:
H. Ainscough - CDPHE
A. Duran - EPA
S. Howard - SAIC, RFFO
S. Keith - EG&G RF
J. Ledford - EG&G RF
F. Lockhart - ER, RFFO
M. Silverman - OOM, RFFO
L. Smith - OOM, RFFO
P. Witherill - SAIC, RFFO

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# OU-4 SOLAR EVAPORATION PONDS DISPUTE ON THE DENIAL OF EXTENSION REQUEST ASSOCIATED WITH A PROPOSAL TO MODIFY WORK SCOPE ISSUES DISPOSITION

During the dispute resolution process, the IAG Project Coordinators identified twelve additional technical issues that required disposition. The issues are briefly restated and dispositions are reported below:

1) Evaluation of site conditions and strategies

Disposition: Resolved; current technical approach, which assumes pond sludge inclusion, was ratified.

The presentation of the design basis and evaluation covered several factors: surface water infiltration abatement performance of the engineered barrier, long-term durability of the remedial action, and protection of ground water from the effects of future vadose zone soil saturation by ground water.

## Infiltration Abatement

Inclusion of provisions to abate infiltration of surface waters (precipitation and run-on) into the proposed design is in consonance with the DOE's objective to maintain flexibility in the closure such that materials of various contaminant levels could be accommodated in the remedy while maintaining protectiveness. These materials would include items, such as the pond sandbags, utility debris, and debris from miscellaneous structures, that will not be further characterized. Furthermore, modeling results based on disturbed soil, pond sludge, and certain pond liners indicate that infiltration abatement must be included to achieve protectiveness if these materials are included in the remedy. These two design considerations lead to inclusion of infiltration abatement provisions; however, if pond sludge is not to be included in the remedy, it is the EPA's position that further justification of the need for such provisions would be required.

## Long-Term Durability

Inclusion into the remedy of remediation waste that is also hazardous waste triggers 6 CCR 1007-2 siting criteria. These criteria include isolation of the contaminants for 1000 years or until they become innocuous. Since the review of potential health effects indicates the remedy must protect against an upwards uptake pathway for the full 1000 year period, the cap design must provide long-term durability against erosion of essential components and the breakdown of any materials used in cap-construction for the entire period. These requirements result in thick top layers of soil for the barrier (to ensure adequate material to withstand the effects of erosion and to support vegetation to minimize the effects of such erosion) and the absence of synthetic materials subject to decomposition.



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Ground Water Protection

Ground water protection must also be considered for the full 1000 year period of performance. If ground water were to rise into the zone containing contaminants, ground water protection could be impacted; therefore, design for ground water protection is also included. The Working Group agreed to accept risk-based comparison standards (relative to ground water ingestion by a residential receptor) for a design basis at the toe of the engineered barrier. The formal determination of compliance with State ground water protection standards will occur at the point of compliance established down gradient of and near the Interceptor Trench System. Determination of whether a future release from the closed unit has occurred, relative to RCRA, would continue to be monitored at the toe of the cap.

During this evaluation, additional work to review applicability and appropriateness of a slurry wall was identified. The specific issue and disposition of that work is documented in issue 12, below.

2) Additional evaluation of cap parameters

Disposition: a. Resolved
b. Resolved; technical details developed during design process

a. A presentation, which focused on the design process and the natural increase in detail that results from the evolutionary nature of the process, was given to the members of the Working Group. As applied to the requirements of the IAG, the design process results in conceptual-level information being available for inclusion into the IM/IRA Decision Document, significantly more detailed information at the time of Title II review by the regulators, and complete resolution of issues at the time of preparation of the final construction package. The presentation included conceptual-level design graphics and calculations that demonstrated that all materials under consideration could be dispositioned beneath the engineered barrier. It was agreed that the appropriateness of the approach and the adequate potential capacity of the site to achieve the remediation goals had been demonstrated. The EPA noted that concern regarding this issue was initiated upon examination of earlier conceptual-level drawings, and that the solution comes, in large part, from expansion of the remedy to include new areas and from minimization of the thickness of several of the layers of the barrier.

   The capacity of the capped area is not significantly impacted by the proposed scope change, since the additional sludge would represent less than 3% of the total amount of material to be placed beneath the cap.

b. Stability issues and the final footprint for the cap will be addressed through completion of the geotechnical investigation and continuation of the design process. The Working Group is satisfied that the site can accommodate the anticipated volume of material subject to final verification of slope stability.

3) Status of sludge as remediation waste

Disposition: Referred to alternate forum for resolution

The EPA provided its perspective on the regulatory framework related to sludge inclusion beneath the barrier. EPA feels that RCRA provides the owner/operator with the option of closing surface impoundments with waste in place, making the proposal legal in action and practice. EPA clarified that the purpose of analyzing whether the sludge will meet regulatory definition as remediation waste was to determine the possibility of getting State approval for CAMU. EPA believes that there are some advantages in pursuing CAMU designation in an effort to relax stringent requirements that may not be necessary to achieve a sound, protective, technically viable closure at OU4.

DOE concurred with EPA's presentation; however, the State disagreed. CDPHE stated that, in its view, the sludge is not a remediation waste based on DOE's prior failure to qualify for a change to interim status to the ponds by failing to meet the requirements of 6 CCR 1007-3 Part 265 Subpart F, *Ground Water Monitoring*. The State's position is that this failure resulted in sludge becoming at that time (and continuing to be up to the present) illegally stored hazardous waste rather than remediation waste. It is expected that the agencies will resolve the issue at a higher level of authority than that represented by the members of the Working Group. Preparation and submittal of the Decision Document, including demonstration that the proposed remedy is appropriate, protective, and effective, will proceed under the assumption that sludge is a remediation waste.

4) Inclusion of sludge as enhancement

Disposition: Resolved; related to resolution of Issue 3

The need for further action on this issue is dependent on the outcome of the State's evaluation of the sludge as remediation waste. Conclusions on the site-enhancement will follow from that resolution. If Issue 3 is resolved favorably, then enhancement relates to the decision on using CAMU. If sludge is not determined to be remediation waste, then enhancement still could be demonstrated to allow disposition of sludge beneath the barrier for the purpose of corrective action.

Several factors related to including sludge in the OU 4 remedy function as site-enhancements: inclusions of the sludge under the cap has no negative impact on the cap design or performance standards; placement of the sludge under the cap will save approximately $20 million and allow for acceleration of other phases of the program that provide treatment in disposal costs and up to $26 million in processing costs, and disposal of non-LDR compliant pond wastes two years ahead of the current schedule; and placement of the sludge under the cap will significantly reduce the inventory of non-LDR compliant, mixed waste in storage at the site. These factors enhance the sites' environmental restoration corrective action, enhance waste management operations at the facility, and resolve a major issue in the FFCA program.

It is important to note that no criteria for evaluation of "enhancement" exist. To overcome this deficiency, the Working Group agreed that the following criteria were applicable:

I. Compliance with applicable provisions of regulations
II. Absence of negative or detrimental impacts on remedy performance
III. Savings in time or money or both
IV. Expedited action on resolution of waste disposal and/or storage issues
V. Risk avoidance
VI. Implementability

The Working Group was not able to develop a rationalization of why disposition of sludge beneath the barrier would not be an enhancement.

5) Physical form of the backfill

Disposition: Resolved; finalized during design

The form parameters are related to constructibility and performance requirements which will be specified during the Title II design. No problems are foreseen.

6) Impacts of DOE Order 5820.2A

Disposition: Resolved

DOE reported that Order 5820.2A does not apply to the OU 4 remediation. The 10 CFR 61 regulation is for commercial disposal facilities which may not directly apply to DOE remediation activities; however, any potentially relevant and appropriate (ARAR) criteria identified within the regulation are expected to be readily met by the proposed approach.

7) Off-site vs. on-site disposal facility

Disposition: Resolved

The availability was summarized for mixed hazardous waste: The Nevada Test Site is unavailable at this time; Envirocare is the only viable off-site disposal facility, though it is not in the same waste disposal Compact as Colorado; no disposal facility exists in Colorado nor in Colorado's Compact; no on-site disposal facility exists and creation of such a facility, while possible, would be incompatible with the current OU 4 schedule (see also issue 11 below).

8) Cost-effectiveness of on-site and off-site disposals

Disposition: Resolved

The analysis was performed and the determining cost was identified to be the disposal fees for off-site disposal, based on waste volume and unit costs. On-site disposal was



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found to be more cost-effective than off-site disposal due to a saving of at least $20 million in avoided disposal site costs and up to an additional $26 million in processing costs.

9) Risk management associated with issue 8

Disposition: Resolved

The cost analysis confirmed on-site disposal as more cost effective. Off-site disposal risk management will not, therefore, be pursued.

10) Prioritize waste streams

Disposition: Resolved

Waste stream prioritization is no longer required; the current design provides sufficient capacity (see also issue 2 above).

11) Use of IHSS 101 vs. other on-site CAMU

Disposition: Resolved

Designation of some other area at the Rocky Flats Environmental Technology Site as a Corrective Action Management Unit (CAMU) is possible, though the availability of the unit is judged to be five to ten years off. If such an approach were pursued, the goal to complete closure of the impoundments as soon as possible would not be met. Near-term efforts would be confined to very limited measures to stabilize the ponds, but remediation would be deferred until the alternate-site CAMU were ready to receive remediation waste. The Working Group does not view this as an attractive alternative at this time.

12) Ground water control with slurry wall

Disposition: Scheduled for resolution in mid-August

Analysis of constructibility and economic factors will be presented August 8, 1994 for review and resolution.



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